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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/824,324	04/02/2001	Takahiro Hoshida	5000-4867	9409

7590                    03/27/2002

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[REDACTED] EXAMINER

RYZNIC, JOHN E

[REDACTED] ART UNIT      [REDACTED] PAPER NUMBER

3745

DATE MAILED: 03/27/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No.	Applicant(s)	
	09/824,324	HOSHIDA ET AL	
Period for Reply	Examiner	Art Unit	
	John Ryznic	3745	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.**

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1) Responsive to communication(s) filed on \_\_\_\_\_.

2a) This action is FINAL.      2b) This action is non-final.

3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4) Claim(s) 1-21 is/are pending in the application.

4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.

5) Claim(s) 20 and 21 is/are allowed.

6) Claim(s) 1,2,7,9,10,12 and 15 is/are rejected.

7) Claim(s) 3-6,8,11,13,14 and 16-19 is/are objected to.

8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

9) The specification is objected to by the Examiner.

10) The drawing(s) filed on \_\_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11) The proposed drawing correction filed on \_\_\_\_\_ is: a) approved b) disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.

12) The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

13) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) All b) Some \* c) None of:  
1. Certified copies of the priority documents have been received.  
2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.

14) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  
a) The translation of the foreign language provisional application has been received.

15) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)	4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____
2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)	5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)
3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.  	6) <input type="checkbox"/> Other: _____

**DETAILED ACTION**

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

***Claim Rejections - 35 USC § 112***

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 7 and 10-19 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

4. Claim 7 recites the limitation "the convex surface" in line 1. There is insufficient antecedent basis for this limitation in the claim.

5. Claim 10 recites a piston, and then adds the structure of a compressor by recited that the piston is accommodated in a cylinder bore of the compressor. Thus, it is not clear if the claim is to a piston for use in a compressor, or to a compressor in which the piston having the recited structure is included.

***Claim Rejections - 35 USC § 102***

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. Claims 1, 10, 12, and 15 are rejected under 35 U.S.C. 102(b) as being anticipated by Burgdorf 3731596.

Burgdorf shows a piston that is not solid (and is therefore considered to be hollow), the piston in figure 1 having a end wall with a flat outer surface exposed to the compressed fluid and an inner surface on the opposite side, the inner surface having a curved surface (near the outer wall) progressing toward a flat surface and then a rising surface (the protrusion) in the center. The limitation in claims 1 and 10 of being used in a compressor is considered intended use, and does not provide for any structure that would overcome the Burgdorf piston.

8. Claims 1, 2, 7, and 9 are rejected under 35 U.S.C. 102(b) as being anticipated by Heyl 4191095.

Heyl shows a hollow piston used in a compressor, the piston in figure 1 having an end wall 4 with a flat outer surface that is exposed to the compressed fluid, an inner surface having two protrusion with a well 4a located between a side wall of the hollow piston and the protrusion, the cylindrical wall 3 being the body piece of the piston. Although the protrusions and wells are rectangular in cross-sectional shape, they are considered to be convex and concave due to the valley formed between protrusions. The convex surface is annular in shape and includes a flat surface on the side facing the inside of the piston.

*Allowable Subject Matter*

9. Claims 3-6 and 8 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

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10. Claims 11, 13, 14, and 16-19 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, second paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

11. Claims 20 and 21 are allowed.

*Conclusion*

12. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Nelson 1818085 shows a method of making a piston having a piston head end with a protrusion on the inner surface of the head.

Gruetjen 2539903; Handler 2024286 shows a method of forming a piston by compressing the near-molten material.

Philip 1490849; Patrick 1061922; Fletcher-Jones 5913960 show a method of making a piston by attaching a head to a cylindrical body.

Berchem 4532686 shows a solid piston having a head end wall with an inner surface having an annular protrusion surrounding concave portions, where the annular protrusion has a flat surface.

Sine 5586483 shows a hollow piston having an end wall secured to the piston body by screws.

Edwards 1841796 shows a hollow piston with an end wall having an inner surface with a convex protrusion.

*Contact Information*

Any inquiry concerning this communication or earlier communications from the examiner should be directed to John Ryznic whose telephone number is (703- 305-

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0060, and fax number is (703) 308-7763. The Examiner can normally be reached on Monday through Friday from 7:30 am until 6:30 pm, EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ed Look, can be reached at (703) 308-1044.

Any inquiry of the general nature or relating to the status of this application should be directed to the Technology Center receptionist whose telephone number is (703) 308-0861.



John Ryznic  
Primary Examiner  
Art Unit 3745  
March 20, 2002